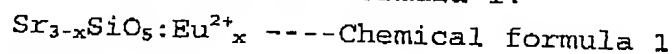


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Claims

1. A strontium silicate-based phosphor expressed by the following chemical formula 1:



where x is $0.001 < x \leq 1$.

2. A method of fabricating a strontium silicate-based phosphor, the method comprising the steps of:

10 forming a mixture where strontium carbonate (SrCO_3), silica (SiO_2), and europium oxide (Eu_2O_3) are mixed; drying the mixture; and

performing a heat treatment of the dried mixture in a reducing atmosphere to form $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}_x$

15 where x is $0 < x \leq 1$.

3. The method of claim 2, wherein the step of forming the mixture comprising the steps of:

weighing the respective components of the mixture; and

20 mixing the respective components with a solvent to form the mixture.

4. The method of claim 2, wherein the drying step is performed at a temperature range of $100 - 150^\circ\text{C}$.

5. The method of claim 2, wherein the drying step is performed for a time range of 1 - 24 hours.

6. The method of claim 2, wherein the drying step is performed at a temperature range of $100 - 150^\circ\text{C}$ for a time range of 1 - 24 hours.

7. The method of claim 2, wherein the drying step is performed using an oven.

8. The method of claim 2, wherein the heat treatment

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is performed at a temperature range of 800 - 1500 °C.

9. The method of claim 2, wherein the heat treatment is performed for a time range of 1 - 48 hours.

10. The method of claim 2, wherein the heat treatment is performed at a temperature range of 800 - 1500 °C for a time range of 1 - 48 hours.

11. The method of claim 2, wherein the drying step is performed at a temperature range of 110 - 130 °C for a time range of 8 - 12 hours, and the heat treatment is performed at a temperature range of 1200 - 1400 °C for a time range of 2 - 5 hours.

12. The method of claim 2, wherein the reducing atmosphere of the heat treatment is made by a hydrogen-mixed gas.

13. The method of claim 2, wherein the heat treatment uses a nitrogen gas containing 2 - 25% by weight of hydrogen gas so as to make the reducing atmosphere.

14. An LED comprising:
an LED chip; and
a strontium silicate-based phosphor, which is excited by a light emitted from the LED chip and expressed by the following chemical formula 1:

$\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}_x$ ---Chemical formula 1

where x is $0 < x \leq 1$.

15. The LED of claim 14, wherein the light excited by the phosphor has a wavelength band of 500 - 700 nm.

16. The LED of claim 14, wherein the LED chip is placed on a reflection cup by which the emitted light is

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reflected.

17. The LED of claim 14, wherein the LED chip for exciting the phosphor is a blue LED chip.

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18. The LED of claim 14, wherein the LED chip and the phosphor are molded by a transparent resin.

19. The LED of claim 14, wherein the phosphor is excited by the LED chip and emits a yellow light.

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20. The LED of claim 14, emitting a white light.